

TEST REPORT

Test Report Issued To:

HENKEL ADHESIVES TECHNOLOGIES (I) PVT LTD(M)

SURVEY NO. 234,235 & 245, PHASE 1, HINJEWADI, PUNE, MAHARASHTRA, INDIA,

Test Report No: N190624003/N190624003-1

Date of Issue: 17-Jul-2019



Sample Booking/Receipt Date: 24-Jun-2019

Date of Start of Testing: 06-Jul-2019

Date of Completion of Test: 08-Jul-2019

Customer Relationship Number 42450

Sample Description :

"Teroson PU 8590 on Aluminum panel"



Customer Reference No :

Kind Attention : MR.SUDHIR KUMAR

E-Mail: sudhir.kumar@henkel.com

Contact No: 8879937727

Sample Condition : NA

Sample Quantity (Approx) : NA

Sample Size (Approx) : NA

SAMPLE NOT DRAWN BY OUR LABORATORY. THE RESULTS RELATE ONLY TO THE ITEMS TESTED

Report Issued by

Authenticity of report can be verified by mail at verification@spectrolab.in

This is a Digitally Signed Report and hence doesn't require Physical Signature.

Spectro Analytical Labs Limited S-1, GNEPIP, Surajpur Industrial Area,Phase-V, Kasna, Greater Noida-201308 (India)

Phone : +91-120-2341250,2341251 || URL : www.spectro.in || Email: care@spectro.in

BIS & DDA Approved, ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Laboratory

Please refer to our Website <http://www.spectro.in/spectro-policies.html> for Terms & Condition

Test Report for Determination of Fire Characteristics of Teroson PU 8590

Test Sponsor:

Henkel Adhesive Technologies India Pvt. Ltd.

Product Name:

Teroson PU 8590 on Aluminum Panel

Scope of Test:

To perform testing as per various test methods given below and to check the compliance of test specimen for category **R1 and R7** of **EN 45545-2**.

ISO 5658-2; Lateral spread on building and transport products in vertical configuration.

ISO 5659-2; Determination of optical density by a single-chamber test

ISO 5660-1; Heat Release rate (cone calorimeter method) and smoke production rate (dynamic measurement).

EN45545-2; Requirements for fire behaviour of materials and components

Testing Laboratory:

Spectro Analytical Labs Limited

S-1 GNEPIP, Surajpur Industrial Area

Kasna, Greater Noida, Phase – V

Gautam Budha Nagar (U.P.)

Pin Code: 201308

Ph: 0120-2341251/52

Specimen Verification:

Test specimens were sent by test sponsor, Spectro Analytical Labs Ltd. Was not involved in the selection of test specimen.



Analyst Signature



Authorised Signatory

Sample Preparation:

Test specimen is prepared by test sponsor as given in Fig. 1. Test specimen can't be made in the form of a sheet, hence a groove having height 5mm and width 10 mm was made in Aluminium Plate (10 mm thick). Groove is then filled with the Teroson PU 8590 and Cured by test sponsor.

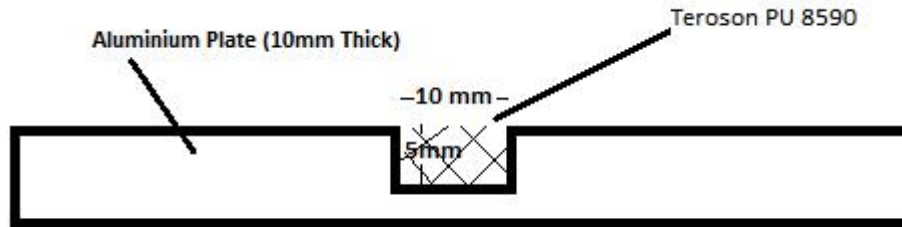


Fig 1. Detailed specimen



Fig 2. Actual Test Specimen

Analyst Signature



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1. Heat Release Rate as per (EN ISO 5660)

Observation:

E:	13.1 MJ/Kg
Surface Area:	0.00884 cm ²
Heat Flux:	50 kW/m ²
Separation:	25 mm
Flow:	24 l/s
Calibration Factor(C)	0.04690
Test Standards:	ISO-5660
Date/Time:	04/07/2019 12:15 PM

Ignition Time

Time to Ignition:	640.20 Sec
Time to Flame in:	51.00 Sec
Time to Flame out:	693.00 Sec

Test Result

Max Average Rate of Heat Emission (MARHE)	21.34 kW/m ²
qA, max	35.38 kW/m ²
qA,180	10.82 kW/m ²
qA,300	17.06 kW/m ²
Total Heat Release (THR)	14.70 MJ/m ²
Mass Loss Rate (MLR)	4.91 g/m ² .s
Total Mass Loss (TML)	339.13 g/m ²

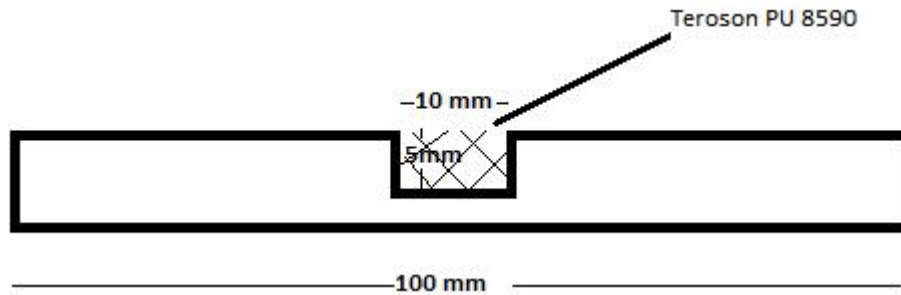


Fig. 3 Test Specimen for Heat Release Rate Test

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Before Test



After Test



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2. Smoke Density as per ISO 5659-2(Non – Flaming Mode)

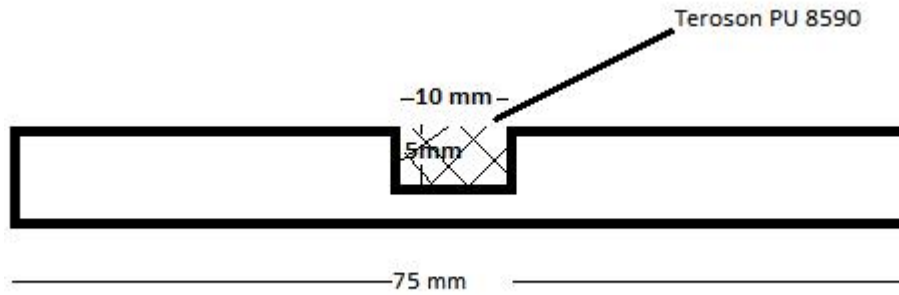


Fig. 4 Test specimen For Smoke Density and Smoke Opacity Test

Test Results

D _s 4	93.3
D _s Max.	101.0
VOF4	274.6
CITg,240 sec	0.054
CITg,480 sec	0.252

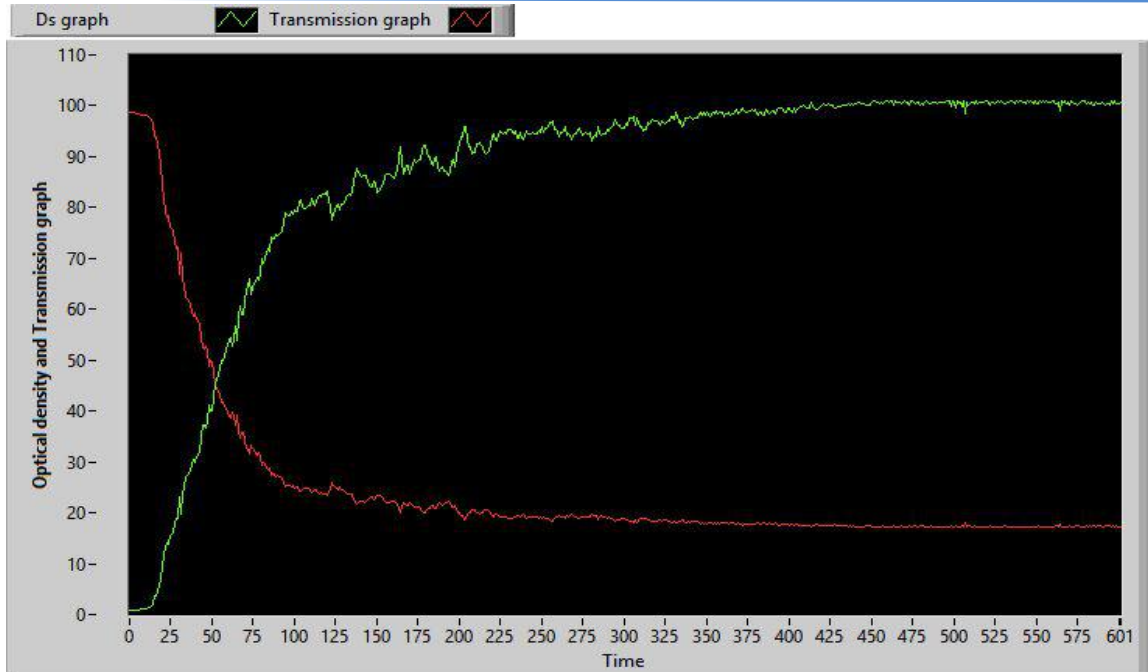
Gases	Concentration(in Ppm)	
	At 240 sec	At 480 sec
HCN	2	5
SO ₂	4	15
NO _x	7	54
CO	72	121
CO ₂	3622	4766
HBr	0	0
HCl	0	0
HF	0	0

Analyst Signature

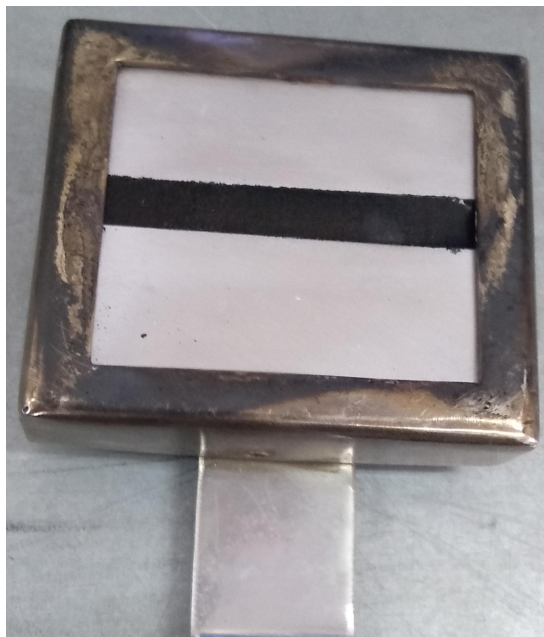


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Graph showing Optical density and Transmission variation with time



Before Test



After Test

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Lateral Spread Flame (CFE)

Sample Description:

Test Specimens of size 155 mm in width and 800 mm in length have been sent by test sponsor.

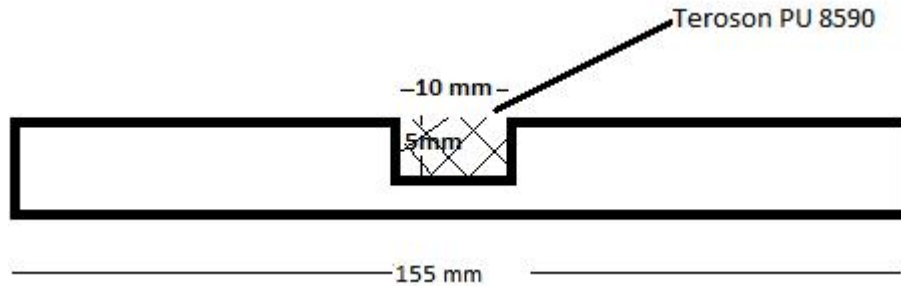


Fig. 5 Test specimen For Flame Spread Testing

Specimen No.	1	2	3
Distance, mm	Time to travel distance (Sec.)		
50	25	21	32
100	45	37	38
150	65	60	54
200	80	74	87
250	120	134	116
300	145	158	138
350	181	184	177
400	-	-	198

Result:

Critical Flux at Extinguishment ≥ 22

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Before Test



After Test

Test method	Parameter	Results	Requirement as per R1; HL3	Requirement as per R7; HL3	Compliance with
ISO 5658-2 Lateral Spread of Flame*	CFE	22 KW/m ²	Minimum 20 KW/m ²	Minimum 20 KW/m ²	R1; HL3 & R7; HL3
ISO 5660-1@ 50 KW/m ² Maximum Average Rate of Heat Emission	MARHE	21.34 KW/m ²	Maximum 60 KW/m ²	Maximum 60 KW/m ²	R1; HL3 & R7; HL3
ISO 5659-2 without pilot burner*	D _s (4)	93.3	Maximum 150	Maximum 300	R1; HL3 & R7; HL3
	VOF ₄	274.6	Maximum 300	----	R1; HL3 & R7; HL3
	CIT _G	0.25	Maximum 0.75	Maximum 1.5	R1; HL3 & R7; HL3

Result: The product sample Teroson PU 8590 fulfills EN 45545-2 fire protection requirements R1 and R7 for the hazard level HL3".

-- End of Test Report --

Analyst Signature



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